# Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME IX.] NEW-YORK DECEMBER 31, 1853. [NUMBER 16.

THE
SCIENTIFIC AMERICAN,
PUBLISHED WEEKLY,
At 128 Fulton street, N. Y. (Sun Buildings.)
BY MUNN & CO.

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### English Traveller - The Comforts of the Age.

The following is an account of a English traveller, by Henry L. Tuckerman, in his recent work published by Redfield:—

"The most comfortable of English drudges are the intermediate class; they who act for the producer as brokers and agents. A certain bluff self-importance and shrewd knowledge of the art of getting along, reveals at once the commercial traveler. I remember one entered the car at Derby just at night-fall, and the guard pitched into his lap a compactly strapped bundle, which, after seating himself in the best vacant place, he began to unloose. With the woolen shawl it contained he thoughtfully swathed his lower extremities; then hanging his hat above, he donned a cosy little skull cap, from the pocket of his huge overcoat; he then drew out a small lantern, and attached it by a hook to the side of his cushioned seat; having ignited the lamp by means of a lucifer match, he spent some time in arranging a little shade affixed to the machine, so as to accommodate the reflection to his eyes; then with an air of the most cool satisfaction, he took from another deep pocket "The Times" and "Punch,' wet from the press, and composed himself to read for an hour, at the expiration of which time he extinguished the lamp, and after several preparatory elongations of arms and legs, laid his red face against the stuffed leather, and nothing more was heard from the dark heap for the rest of the journey but an occasional somniferous grunt of animal content.

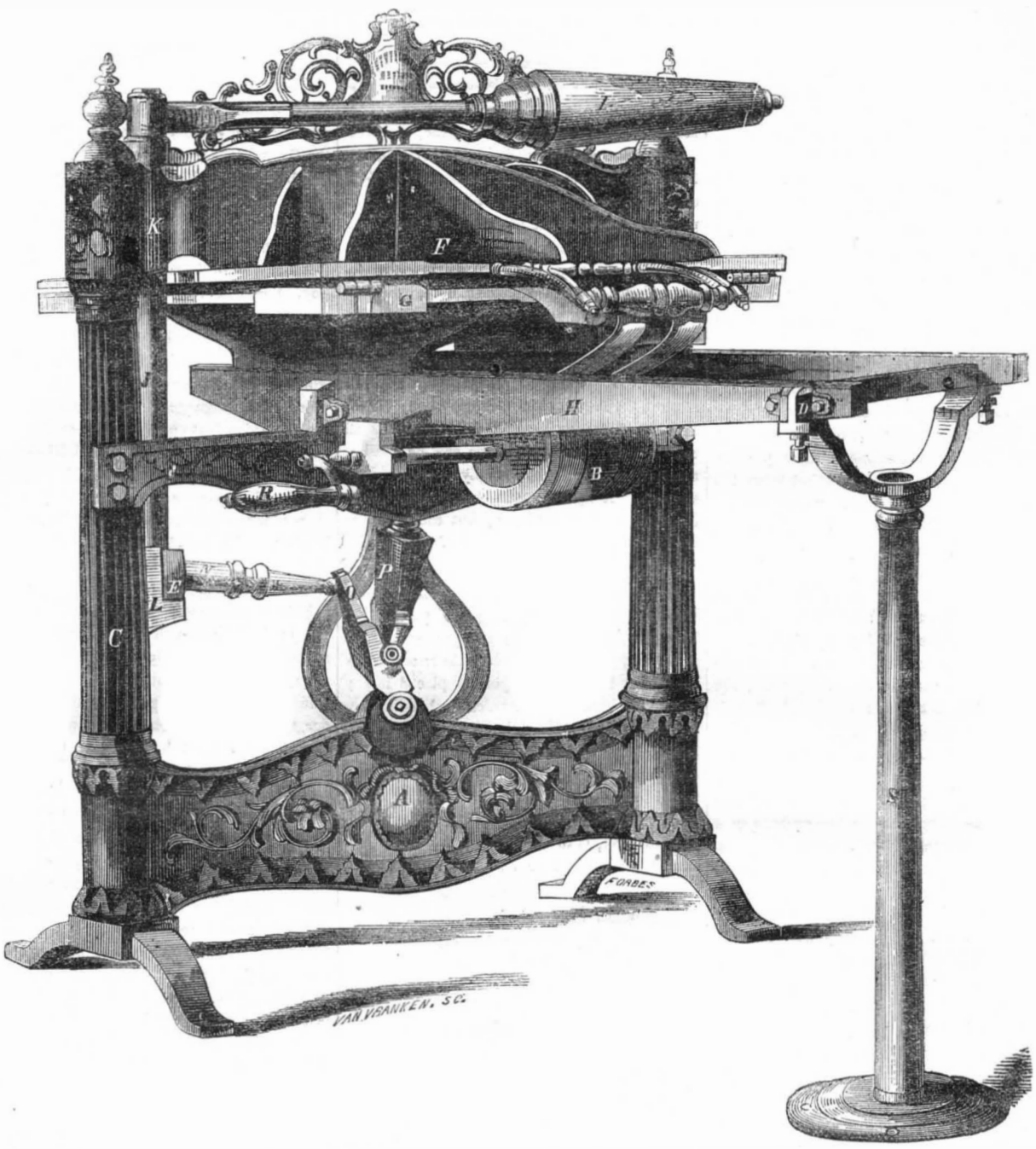
### American Steamships.

On the Pacific side of South America, steamships are making good progress in the affections of the people. The Chilian Congress has lately closed its session, and one of its important measures was to adopt, with only one opposing vote, a project of the Government establishing a line of steamers between their coast and Europe. The proposal as set forth by the Minister of the Interior, is to make an appropriation in aid of a line of vessels, "with an auxiliary steam engine," which is to be established between Caldera and Liverpool, touching at Valparaiso, in the Straits of Magellan, and at Rio Janeiro; one vessel to sail every six weeks, and never to be over 70 days on the passage. The Company is granted a bonus of $60,000 per annum for ten years, an exclusive privilege for the same term, and exemption from anchorage duties. The company is made up entirely of people from the United States.

### Consumption of Wood by Locomotives.

The consumption of wood by the locomotives on the Michigan Central and Southern roads, between Chicago and Niles, and South Bend is estimated at 30,000 cords within the past year. The Rock Island, and some other Illinois roads are dependent on Michigan and Indiana for wood, and get it by running their wood trains over the Michigan roads. The present prices of wood in Chicago are:—Hickory $6,50, to 7; Beach and Maple, $5,50 to 6; Oak, $4,50 to 5. This is nearly as dear as it is in Albany, N. Y. Before the introduction of railroads, hickory wood could be purchased in Michigan for $1,50 per cord.

## FOSTER'S IMPROVED HAND PRINTING PRESS.




The engraving herewith presented is an illustration of a Hand Printing Press, for which a patent was granted to Chas. Foster, on the 5th Oct., 1852.

The frame-work is of iron, and consists of the base rail, A, forming a fulcrum for the action of the toggle-joint levers, two columns, C C, and the top rail, to which the platten, F, is attached, which is stationary as in the Adams' presses. The chief peculiarity of this press consists in the inclination of the bed and the forward end of the ribs or way, on which the bed runs, so that when the bed is drawn forward under the platten, it is in its progress made to rise enough to reduce the necessary lifting action of the toggle-joint one half, and thus to allow an increased leverage of toggle at the close of the stroke, by this means materially lessening the labor of the pressman, so much so, indeed, that the same hand can accomplish far more than with any other arrangement.

The handle, I, is attached to a shaft, J, which passes downward below the ribs in order to communicate motion to the toggle movement beneath them. This shaft is journaled vertically to the standard, C, by the lugs, K and L, from this shaft projects an arm, E, jointed to the rod, N, which is socketed in the upper part of the limb, O, of the tricket toggle, the upper limb, P, being socketed to the under side of the bars or ribs, H. which are hinged upon the standard, S. R is the handle of the rounce, B, which has bearings in ears upon the bottom of the way bars or ribs. The clamp which holds the rear rounce strap is made to serve also the purpose of a rest for the heel of the tympan, when the latter is thrown back, superseding the support now in use.

We think this press possesses some excellent features, particularly the one referred to in the description, and we recommend it to the attention of printers.

The inventor claims, first, the arrangement, substantially as described, in a hand-power press, of guide bars resting upon adjusting points, or hinged at their rear ends, and guided at their front ends to a vertical vibration, concentric with said points or hinge, so that the entire bed, guide bars, and their appendages, shall move bodily upward upon giving the impression, and return by their own weight to the state of rest, whether operated by a shaft extending below the bed, and working a toggle joint beneath the bed or bars, as described, or in any equivalent way.

Secondly, he claims, in connection with the described arrangement, the ascending grade at the fore end of the guide bars, for the purpose of limiting the range of the toggle, at the period of giving the impression. This Press is on exhibition at the Crystal Palace.

For further particulars address the patentee, No. 1 Lodge Alley, Philadelphia, where the presses are manufactured.

### Adventures of an Aeronaut.

The aeronaut, Mr. Arbant, who made an ascent from Barcelona, Spain, more than two years ago, and had not since been heard of, and who was believed to have fallen into the sea and been drowned, it is said, has made his appearance again. An Alicant letter says that his balloon went over to Africa, and that he was seized and made a slave, and continued in that state for two years, when he made his escape.

### The Wheeling Bridge Case.

The U. S. Supreme Court has dismissed this case, in consequence of no counsel appearing for the complainants; it is to be presumed that the bridge will be permitted to stand without opposition from Pennsylvania. Congress, at its last session, declared the bridge to be a post-route, which, no doubt, removed all legal objections to it.

Since September first, there have been exported to Europe alone, from this country 1,100,000 barrels of flour, 4,750,000 bushels wheat, and 650,000 bushels corn.

A new iron steamer is building in Glasgow for the Philadelphia and Liverpool Line.

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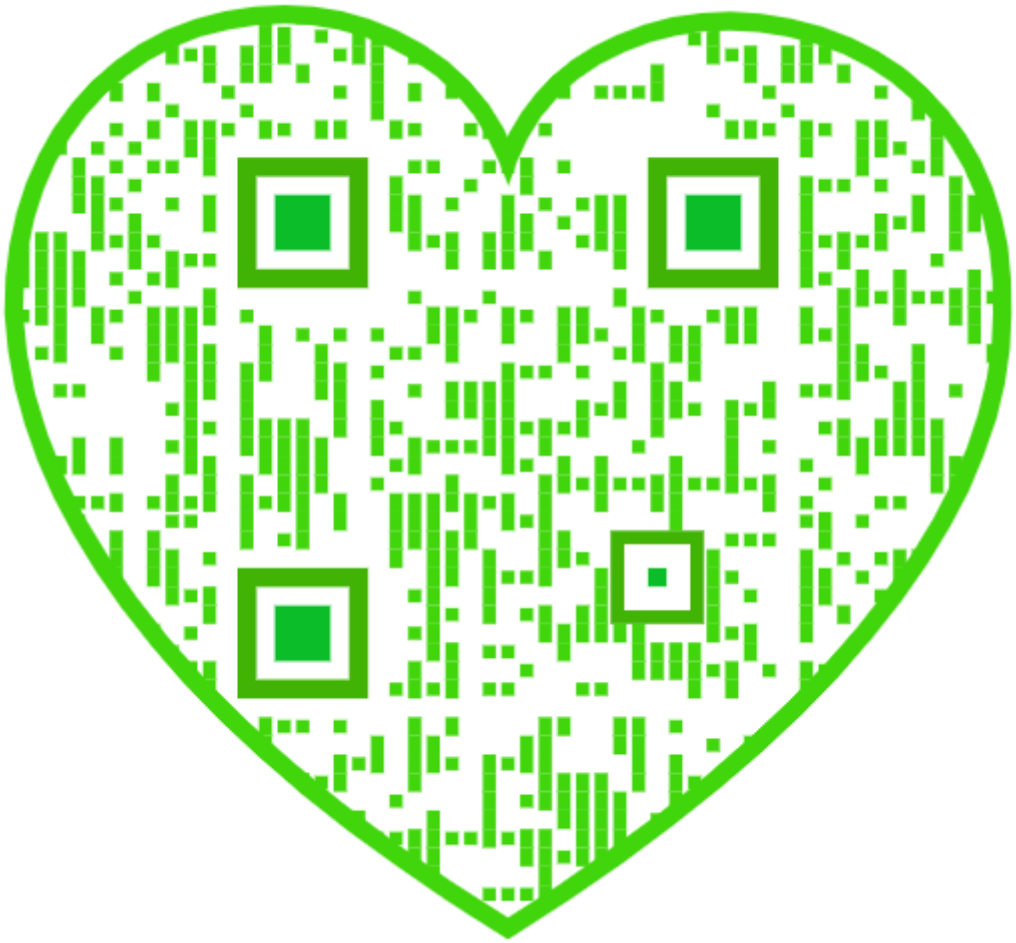

### Imponderable Agents.---No. 3.

[Second Series.]

Light and Sound—In our last article, on page 114, we noticed the correctness of Euler's comparison of the phenomena of Light to that of Sound, and we set forth the principle on which he based his views, namely, the great *elasticity* of his subtle ether. To show still further (as the last article was broken off somewhat abruptly) that *elasticity* not *density*, is the cause of the rapid travelling of sound, we have only to refer to the well known fact that sound travels 1125 feet per second when the atmosphere is at 62°, and only 1089¾ feet per second when it is at the freezing temperature, and the air much denser. Sir Isaac Newton endeavored to account for this fact by supposing the molecules of air perfectly elastic solids (how near this comes to Euler's very explanation of the nature of ether) through which sound is propagated instantaneously; but this was no explanation at all, and it was reserved for La Place to demonstrate the cause by the greater elasticity of the air when hot than cold, and by which the velocity of sound through it was thereby augmented.

Light moves at the rate of nearly 192,000 miles per second; if a molecule of it weighed but a single grain, its momentum would be such that its effect would be about equal to that of a cannon ball of 150 lbs, projected with a velocity of 1000 feet per second. How infinitely small must be the molecules of such an ether, when millions upon millions of them produce not the slightest mechanical effect upon the most fragile piece of glass. "Carrying out Euler's parallel of Sound and Light," says the articles to which we have referred, "what would be the result if an immense multitude, assembled together, were each at the same time to shout with a different cry: would a listener be able to hear distinctly the voice of any one? Most certainly not; yet gazing amid the myriad orbs which spangle the starry vault, the eye can readily detect the smallest." This is not a conclusive objection to Euler's comparison of Sound to Light. Without concentrating his thoughts upon any one voice or instrument, but grasping the whole volume of sound at once, Handel could detect the mistake of a semi-tone in an orchestra of 300 performers. We find no difficulty in detecting the sound of every different instrument in a band, although each instrument may be striking the same note at the same time. This is very wonderful indeed, and of thirty vocalists in a choir, all striking the same notes, so divinely has the Great Creator constituted sweet human voices, and given them such a variety and peculiarity of *fibre*, that each singer can be readily pointed out by those familiar with the persons, and the laws of sweet sounds. Euler, like most Germans, was a perfect master of the science of music, and an excellent performer. His comparison of Light and Sound is beautiful and correct. It is also true that when waves of sound meet any fixed surface, totally smooth, they are reflected according to the law of equal angles of incidence and reflection. In this way *echoes* are produced, and in this way waves of sound resemble the pulsations of light.

Pulsations of Light.—Since the days of Newton a great variety of phenomena have been discovered, all concurring in establishing this wonderful fact—the periodicity of light. Every ray of light through space is accomplished by equal and regular steps, the number of which, in a given space, is measurable. A certain ray of light is identified by the length of its steps. The red ray in the solar spectrum makes 36,919 steps in one inch; the green ray makes 48,289, and the violet ray makes 64,631. These are not matters of theory, but experimental facts. What the action may be, which thus recurs at regular intervals in the progress of light, we cannot tell, but it is demonstrably known that an action of this kind is repeated 64,631 times during the passage of a ray through an inch of space, and as it is also known that this action can pass through 192,000 miles of space in one second, it follows that Light makes no less than 786,000,000,000,000 pulsations in one second in the violet ray, 587 billions of times in one second in the green ray, and 449 billions of times in the red ray. How wonderful is the mechanism of the eye which can thus distinguish between the different rates of vibrations, for it must be so constructed as to be able to distinguish different colors. We have here an explanation of the cause of what is termed "color blindness," an optical defect, with which the great Dr. Dalton was afflicted—he being unable to distinguish the difference between a cherry and the leaves of the tree on which it grew. All this is beautifully corroborative of the Undulatory Theory, and the inductive reasoning of Euler, in comparing the phenomena of light to that of sound. But we have stronger testimony in favor of it still. This will be presented in our next.

(To be Continued.)

### Recent Foreign Inventions.

Rendering Wood Fire Proof.—William Maugham, of Iffield-terrace, England, patentee. A large iron air-tight cylinder is provided, and to this, in any convenient manner, is attached an air pump. It is filled with a solution 176 parts by weight of the phosphate of soda, and 54 parts of the muriate of ammonia to every 2½ gallons of water. The wood is placed in the cylinder through a proper door, which is stopped up tight, when filled, and the air pump is then set to work to exhaust all the air, and thus subject the timber to pressure when in the solution. It is left in this solution for 24 hours, then taken out and dried, when it is fit for use. The salts used in the solution is all that is new. The old liquor can be used a number of times by simply recruiting its strength. A hydrometer would be very useful for the purpose of testing it, but the patentee does not seem to know the use of such an instrument.

Preserving Vegetable Substances—Julien Boilesve, of Brompton, England, patentee.—This invention relates to the preservation of grain and other vegetable substances. The substances to be operated on are placed in any suitable air-tight box, or vulcanized india rubber bag, and chlorine and sulphurous acid gas, is introduced by means of a tube. The patentee is an engineer; had he been a chemist he would have chosen a much better gas for this purpose, namely, carbonic acid gas. Chlorine gas, however, is the best that is known for destroying any fungi or insect that may be in the grain.

Artificial Fuel.—L. G. Ducayla, of Bordeaux, France, patentee.—This artificial fuel is made of coal ashes, wood, anthracite coal dust, dry clay, peat earth, and common mud, sea salt, and nitrate of lead. Two-thirds of the compound must be of coal dust, and 4 lbs. of the nitrate of lead are added for every ton. The rest of the ingredients named are made up of equal parts by weight excepting the salt, 10 lbs. of that being sufficient for one ton. These substances are well mixed together, and formed into dough balls and dried in the sun.—These balls may be of any suitable size. We have no doubt but these ingredients will make a very good artificial fuel, which may be successfully employed where coal and wood are high in price. If any of our citizens desire to engage in the manufacture, we can recommend them to any quantity of mud cheap and clean as any dirt. If any one asks, where is it? We answer, Broadway and Chambers streets, and all our other streets.

Purifying Tallow and Making Rich Manures.—J. Webster, of Ipswich, England, patentee.—The rough fat of animals is boiled in hydrous-sulphuric acid for about two hours, when it is allowed to settle, and the fat which floats on the top, is run into a separate vessel. The animal matter, besides the fat, combines with the acid, and this is used to dissolve bones or mineral phosphates for making manure.

30 lbs. of common sulphuric acid is stirred into 18 gollons of water; this is a bath for 170 lbs. of rough fat, such as whale blubber, kitchen stuff, &c. The tallow which is obtained by boiling is washed with hot water until all the acid is removed; 1 lb. of ground chalk is added to the last water which is given. The tub used for washing the tallow has a false bottom, which is covered with a cloth. This allows the dirty water to run off with very little trouble. Sulphuric acid has long been employed for obtaining tallow and purifying oils; this is not claimed, but simply the use of the acidulated liquor after being so used, (which may be employed to obtain tallow until it gets too yellow in the color) to make phosphate of lime manures.

Wash for Porous and other Walls.—B. Barrett, of Ipswich, England, patentee.—Take 1 bushel of limestone and dissolve it in 12 gallons of water; to this add 12 lbs. of alum dissolved in half a gallon of warm water, also half a gallon of beer grounds, and ¼ of a gallon of ox gall. This mixture may be colored with any suitable mineral color. It is laid on the surface of the wall (while lukewarm) with a brush. It soon becomes hard and is very durable.

### Inventors' National Protective Union.

Constitution.—As has already been noticed in the columns of the Scientific American, a number of inventors some time since met in the Crystal Palace and organized an Association bearing the above title. The Constitution of that Body is now before us. The *Preamble* sets forth, briefly, the grievances which induced its framers to associate together to effect a reform of them by Congressional legislation. A reform of the Patent Laws is demanded upon a principle which has long been advocated by some in this city, who have made themselves conspicuous in all such affairs, but in whose judgment we have no confidence whatever. The language of the preamble is "We are of opinion that no just reason can be shown why the Government should discriminate in what property a man should call his own. We believe that whether he procures it by the force of his genius or the labor of his hands, it is ecually his; and it is unjust in any government to say that his right to the one shall be forever, and to the other only 14 years."

This is the grand object of a reform of the Patent Laws, set forth in the Preamble. The author of it is evidently no logician, nor is he acquainted with the subject. To carry out the principle set forth, Congress has only to destroy our whole patent system, and let every man invent and use what he pleases. Our present Patent Laws are negative to what may be called *natural* rights, as they provide for patents to *first* inventors, only. If the Patent Laws were based on *natural* rights, patents would oftentimes be granted for the same improvement, to four or five different persons in one year. Thus for example, five different persons living at great distances from one another in our country applied in one year for separate patents on a churn. Each was ignorant of the other's similar improvement—all were alike. Upon the principle of natural right—for each applicant was equally the inventor of the improvement, and each expended the like amount of genius on it—five patents should have been granted. But by law the person who proved priority received the patent, and the others are not even now allowed to use their own invention—the very property which this Association speaks so feelingly about. Patent property is not like any other species of property in the world, and the same laws which regulate real estate cannot be applied to inventions upon any correct principle of law whatever.

Some of the articles of the Constitution are very good, but no better than other Associations formerly established for like objects, all of which miserably failed to do anything but injury to inventors. It provides for a general fund for the purpose of assisting inventors who may chose to ask its aid. Every citizen may become a member, if he is an inventor, by paying five dollars for admission and one dollar annually. For the examination of models and inventors papers, the fee of five dollars is also to be charged. Officers and managers are to be chosen, and a yearly Fair is to be held in some place not yet mentioned. The By-laws provide for a salary of $500 for each of the two Secretaries; that of the Treasurer is to consist of 4 per cent. on all receipts.

Judging from our past experience and this Constitution, we cannot see how any good can be accomplished by such an Association; and we predict—and call upon all inventors and their friends to mark our words—that *no good will ever result to inventors from it.*

Seven years ago an Inventors' Association was formed in this city, ostensibly with the same objects in view. An account of its proceedings will be found in volume 2, "Scientific American." Many men of excellent reputation were members, but all were not "*honorable* men." It deceived many inventors with its pompous pretensions. An Association of like character was formed in Baltimore; that also deceived many inventors. It provided for examining inventions like this Association, for a fee in each case of $5, we believe. A number of honest inventors sent in their fees to that Association, who have written us letters of inquiry respecting its existence; they never having received any attention from its managers. Inventors, we know, are naturally jealous, and they certainly have just reasons for such feelings. Associations are not very responsible bodies; mismanagement and mistrust*iness* in them cannot be reached effectually. Not a single Association of this kind hitherto established for the benefit of inventors, has worked well. There is an inherent defect in their nature, when based on principles like those set forth in this Constitution, which cannot but render them inoperative for the accomplishment of general good to inventors.

### Abandonment of an Invention.

Messrs. Editors—Do you understand the decision of Judge Kane, in "Battin vs. Taggert," as against an inventor's right to so amend his Patent as to secure to himself *all* that was clearly his invention? For example: In 1841 I take out a Patent; during the succeeding eight years I am constantly engaged in perfecting my invention, and bringing it into public use. My apprehension of the true nature and value of the invention, breaks upon my mind by imperceptible degrees. Just when the invention has attained its greatest perfection, (by adaptation, mind you,) the public begin to see its importance, and certain sharpers prepare to come in and reap where I have for years been laboriously sowing. I perceive that one important point in my invention is not protected by the patent. Ample proof there is of its existence. All that I have ever suffered to go into use, has been labelled, "Patented, &c.," according to law. No one else has as yet attempted to introduce any portion of my invention into public use. Now, I ask, is there here any proof of an "abandonment?" May I not, at this stage, apply and have my patent so amended as to keep out the pirates who would like to steal what Nature never gave them brains enough to invent? An answer will oblige Subscriber.

[In considering this case, we must leave out all that relates to the "*perfecting* of the invention during eight years after the machine is patented." Section 13, of the act of 1836, provides only for remedying "a defective or insufficient description, and for correcting a claim when it is too broad, if the error has arisen by inadvertancy, accident or mistake," but not otherwise. The quotation is from the law; the way to obtain the remedy is by surrendering the defective patent, and praying for a re-issue. There is no provision made for claiming what was originally described, but not claimed in the original patent. Section 7 of the act of 1837, provides only for remedying claims which are too broad, not too narrow: Judge Kane decided according to the law. Great care, caution and intelligence, therefore, must be exercised in preparing patent applications, and we are afraid, although the case is a hard one, that the law cannot afford a remedy for that *one important point*, which our correspondent has suffered so long to go before the public, described, but not claimed as his invention.

It makes no matter about the label "patent" on the machines or articles sold under that patent; the patent only covers that which is fully described and *claimed* in the specification, and no more. The only point on which there is any ground of hope for our correspondent, is in the consideration that his invention—"the important point"—has not been attempted to be introduced by any other person into public use.

The above letter came to us post-paid, but unaccompanied with its author's name. In noticing it, we have departed from our general rule—the importance of the case, so clearly pointed out, induced us to make it an exception.

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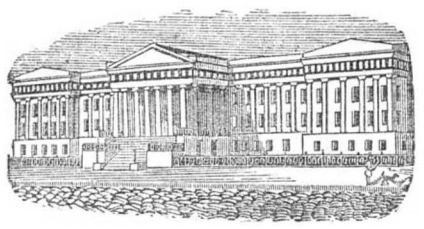

### Our List of Patent Claims.

We regret to inform our readers that the List of Patent Claims for the past week, had not been issued when we went to press. It is drawing near the time when the Commissioner makes his annual report to Congress; and as the Examiners have to make their reports to him, a great deal of extra labor is therefore incurred in the Patent Office during the few weeks which precede the 1st of January.

### Extension of Morse's Patents.

The following quotations are from "Schaffner's Telegraph Companion," a new monthly magazine, devoted to the science and art of the "Morse Telegraph," by Tal. P. Shaffner, Secretary of the American Telegraph Confederation in Washington, D. C. :—

"The subject of the extension of the patents granted to Prof. Morse, by the United States, seems to be gravely considered by a portion of the American press. Of course no one doubts its importance to the inventor and the people. The following notice, relative to the question, we copy from the 'Scientific American,' viz.—

'A statement has lately appeared in one of our daily papers, to the effect that a number of interested capitalists, with their seat of operations in the city of Washington, have formed an association, with a capital of $500,000, for the purpose of procuring the further extension of the Woodworth Planing Machine patent, also the Hayward Patent for manufacturing india rubber, and the Telegraph Patent, granted to Prof. Morse, April 11th, 1846. The intention is to accomplish this result by a special act of Congress during its next session. There must be some error in including the patent of Prof. Morse, inasmuch as it has yet seven years to run, and the extension, if any, should be granted under our general laws. It is possible, however, that the owners of the patent, anticipating its rejection by the Commissioner of Patents, are thus providing in due season, to supersede the general law, by obtaining a special act. To be fully convinced of this, however, we shall need more light upon the subject, but, from information received from other sources, we are led to believe that large sums of money are being collected to obtain the extension of the two first patents. We are opposed to the further extension of these patents for the following reasons:—1st. Because the applicants for the extension have already amassed enormous amounts of money from these inventions.

. . . . 2nd. We are opposed to the extension of these patents, because they have been so managed by the owners as to injure deeply the interests of inventors, and to cause the public to become dissatisfied with our whole patent system, which is one of the most noble institutions in our country. We have always advocated the interests of inventors, and have defended their just rights; but in opposing the extension of these patents we plant ourselves upon the foundation of the rights of the people, who, as well as inventors, are deeply interested.'

"The editor of the above paper expresses doubt as to an association of Prof. Morse in this Company, with a capital of $500,000, but proceeds to place him with inventors, whose patents he thinks ought not to be renewed. We deeply regret this species of procedure upon the part of the editor, to arouse "public sentiment to bear forcibly upon Congress,' against the merit of the Morse patent. He ought not to associate parties in an arrangement affecting so seriously the rights of persons, unless the evidence of the fact is complete. We can assure him, that so far as Prof. Morse, or any of his friends are concerned, there is no truth in the report he has seen fit to indicate in the article quoted above. Nor has there been any grounds for the origination of so base an imputation, other than a willful misrepresentation by some one, who has probably been foiled in his propensity to plunder from Morse those rights seemingly guaranteed to him by the letters patent.

"It occurs to us, and we express our opinion with due respect, that a high and elevated work, like the paper from which we have quoted, ought to be more careful and discriminating in assailing the reputation and property of citizens. The editor claims to be 'the friend of inventors;' but we think his past career has manifested a very different disposition towards Morse. We have been often pained to see his paper joining with a part of the press in assailing the patents for the American Electro-Magnetic Telegraph.

"The first objection to the extension of these patents seem to be correct, if *true ;* but if not true, then a renewal ought to be granted by the Commissioner. Such is the case of Prof. Morse. He has not 'amassed enormous amounts of money.' If he has not, the 'Scientific American' ought to advocate the renewal of his patent.

"The second objection is so sweeping that we know not how to answer, so far as it may refer to the Morse patentees. We suppose, however, the objection must refer to the other patents, as there has not been any very great mismanagement of the Morse patents, unless an effort upon their part to prevent themselves from being robbed and plundered by reckless and unscrupulous speculators, be mismanagement.

"We hope the courteous editor of that valuable work on Science will correct the misrepresentation made, and in future not assail the renewal of a patent, unless he knows his first objection is unquestionably verified."

[We must confess our surprise at the above article. How any person, with an honest endeavor to understand us, could have so strangely misconstrued our language, is more than we are able to determine. The statement mentioned at the beginning of our article was taken from a New York morning paper,—we doubted its truth so far as Morse was concerned, and stated that doubt. But more than this, we *expressly pointed out* the Woodworth and Hayward patents, as obnoxious, before saying that "we are opposed to the further extension of these patents," and the writer who commented on our remarks, unfairly and uncandidly left out these comments without marking any omission, thus bringing the phrase "these patents" in proximity to the original connection of the three, while in our article the part thus omitted without notice, particularly specifies the Woodworth and Hayward patents as those to which we had reference.

If he had possessed sufficient candor to give the whole of our first reason for opposing the further extension of "these patents," it would have been evident to all what patents were meant, as the Woodworth and Hayward patents were distinctly mentioned and named, and the reason freely and fully set forth, for refusing their extension by act of Congress.

But as if "to make assurance doubly sure," we again, in the course of our remarks, after mentioning the planing machine patent by name, say, "We have always opposed it, and no threats intimidations, or overtures, can swerve us from our course even though it may be united to an ally as powerful as the India Rubber Company;" and we closed our article by saying, "In the case of the Woodworth Patent, there is every just reason why it should never again be extended, and as for the india rubber case, to extend it would be in defiance of the Patent Law, and the decision of Commissioner Hodges thereon."

From these reasons, we assert positively, that no man who is capable of comprehending ordinary language, could have mistaken our meaning, and the writer of these comments upon our article can, at his own choice, either plead dullness of comprehension or stand convicted of wilfully misquoting and then misrepresenting us; for in law as well as ethics, omitting a portion of a statement which materially alters the sense of the remainder, is equivalent to a misstatement.

Neither is it true, as stated in the above, that "the 'Scientific American' has manifested an unfriendly disposition towards Prof. Morse," or "that we have joined with any part of the Press in Assailing the patents for the American Electro-Magnetic Telegraph." We defy any man to point out a single unjust remark or insinuation ever made in our columns against Prof. Morse, and we consider it an insult to be told that we have joined with a part of the Press in assailing the patents referred to. We keep free from entangling alliances: we stand on our own free but firm foundation, and express our own opinions on every subject, irrespective of the opinion of any other paper or person in the world. The only reason for imputing to us unfriendliness towards Prof. Morse, and his patents, must be because we have defended the rights of other patentees when unjustly assailed, as we honestly believed, by those personally interested in the monetary success of the Morse patents; but their admiration of the inventor, apart from such a consideration, we believe is much less than ours: we are proud of him as an American citizen, and respect and admire him for his great invention. Nay, we have often defended his invention from the unjust assaults of others, and even before we saw the above article, we had penned some remarks which will appear next week, in defence of the honor of his invention against the claims of a foreign inventor (Mr. Wilkins.)

Every candid man will admit that we, who have no interest in any patent, are more likely to take an impartial view, and express a more just opinion of the Morse Patents, than the above magazine, which is but the organ of the owners of said patents. To defend the just rights of any inventor against the assaults of the powerful friends of Prof Morse, does no injustice to him or them. We have on more than one occasion said "the Electro-Magnetic Telegraph Patent of Prof. Morse is good against the World;" if this is "assailing the reputation and property of citizens," the "Telegraph Companion" can make the most of it.

So far as it relates to "the enormous sums of money," said *not* to be amassed by Prof. Morse, we accept the above statement, but we must excuse ourselves from advocating the extension of his patent, in company with the indiscreet zeal and misrepresentation of his own organ.

We are not willing to believe that the above article was written by Mr. Shaffner, with whom we are personally acquainted; to him we cannot impute such a misrepresentation of our views and language.

As a matter of curiosity, we would like to have our readers examine the article we published in No. 10, and judge for themselves how far we have connected Prof. Morse with the discussion of the Woodworth and Hayward Patents, and would ask them if it is possible for stupidity to go beyond such a specimen of criticism as that of the writer in the "Telegraph Companion?" We think not.

### Interesting Patent Case.

Calico-Printer's Metal Rollers.—A very interesting patent case was decided in the U. S. Circuit Court, this city, Judge Betts presiding, on the 22nd inst. The parties were Thomas Paton against Robert Rennie (of the Lodi Printworks, N. J.) The suit is brought to recover damages, (laid at $10,000) for infringement of a patent issued to the plaintiff, Oct. 24, 1848, for an alleged improvement in making skeleton dies for machines used in printing calicoes.

The old way of making the rollers, was to engrave the figure and the groundwork together upon steel dies, which were afterwards hardened, and the impression then communicated to the roller. Subsequently an improvement was made, by making the figure alone upon the dies, called then skeleton dies, and having made the impression upon the rollers by their means, then to form the groundwork by a separate process or milling.

The improvement claimed by the plaintiff consists in milling the whole surface of the roller, first, to form the groundwork by machinery, and then putting on the figure by means of the skeleton die.

There was no question in respect to the infringement, provided the patent was tenable, but it was set up for the defence, that the improvement claimed was not patentable, and also that it had been known and used publicly, before the patent was issued to the plaintiff.

The testimony having been taken, and the arguments of counsel having been heard, the Judge charged the Jury that in order to make the improvement patentable, it must be something more than merely a new use of a method already known and used, and to employ them in a new way, was merely the skill of the artisan, for which no patent could be obtained. That if they were satisfied that this improvement was something more, and also that no previous public knowledge had been shown by the defendant, they must find a verdict for the plaintiff, for such damages as he had proved.

Whereupon the Jury brought in a sealed verdict for the defendant, Rennie.

For plaintiff, Wm. M. Allen and S. P. Staples. For defendant, Messrs. Howland and Chase and Mr. E. W. Stoughton.

### Another Patent Case—Lead Pipe.

An injunction was granted by the same Court—Judges Nelson and Betts presiding—against R. W. Lowber and others on petition of B. Tatham, Jr., and others, assignees of the patent of John and Charles Hanson, of England, for manufacturing lead pipe by machinery. It is, we believe, to be carried up to the Supreme Court of the U. S., at Washington.

### Heliographic Steel Engraving.

M. Niepce de St. Victor, the nephew of the inventor of Photography, has invented a new process of steel engraving, of which the following is the account by him transmitted to the Academy of Sciences, which we translate from "La Lumiere," one of our foreign exchanges:

"I am eager to communicate a new varnish for Heliographic Steel Engraving. This varnish has the fluidity of albumen, and is spread as easily as collodion, and dries so quickly that the operation can be performed in ten minutes after it has been spread upon the steel plate. The following is its composition:—Benzoin, 100 grs.; asphaltum, 5 grs.; pure yellow wax, 1 gr. I have also modified the solvent in the following manner:—Naphtha, 5 parts; benzoin, 1 part.

I have rendered my varnish so sensible to light that I can operate in ten minutes or a quarter of an hour at most, in an obscure chamber, and in much less time when the work is in direct contact with the rays of the sun.

The varnish is rendered sensible by reversing the plate over anhydrous sulphuric ether, containing a few drops of rectified essence of lavender. After the plate is dried it is exposed to the light. After this operation is terminated the plate is etched after the process of M. Lemaitre."

### A Growing Stone.

Mr. William Beach. a journeyman printer, of Auburn, N. Y., writes us that he has in his possession a stone, of which he says:—

"The stone is oval, diamond shaped, having eighteen sides, being about five-eighths of an inch in thickness.

It has been in my possession for the last nine years. During that time there has grown from its side another stone of like shape, about the size of a common pea, having eleven sides.—The parent stone has not diminished at all, but rather increased. The color of the stone is a pure white, being perfectly transparent, excepting the shape of the stone giving the prismatic colors of light, which grows out of the convergence and divergence of its many sides. Also, in the smaller one is a slight tinge of amber.—It is quite hard, cutting glass with ease, though its corners and ends are quite obtuse."

If Mr. B. will forward this stone to some city friend in whom he has confidence, we shall be glad to take a look at it. We presume there are geologists and chemists here who would also like to examine it, and who may be able to throw some light on its odd behavior.—[N. Y. Tribune.

[This stone being *oval*, diamond shaped, and yet possessing eighteen sides, must be a curiosity in crystalology. How it can be of an eliptical and yet a diamond shape at the same time, would certainly puzzle Euclid.

The South Carolina Senate has rejected a bill to aid in constructing the Blue Ridge Railroad.

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# New Inventions.

### Strengthening Cast-Iron Ornaments.

Wm. Hill, of New York City, has invented an improved mode of strengthening cast-iron ornaments for railings, &c., which consists in providing each ornament with a separate brace of wire, or wrought-iron, said braces being of any shape to correspond with the form of the branching ornaments, and fitted snugly to other vertical braces, which strengthen the ornaments and give force to the railing. The ornaments are cast around the ends of the braces, which are placed in the moulds. A patent has been applied for.

### Valve Motion.

T. Goodrun, of Providence, R. I., has applied for a patent upon an improvement in the arrangement and mode of operating the valves of steam engines, which consists in regulating the admission of steam to the cylinder by means of rotary tubular valves, placed in the cylinder heads and receiving a constant rotary motion, and in exhausting the steam from the cylinder through ports in the cylinder heads, furnished with puppet valves opening inwards, these valves being so connected that when one is opened the other is closed, they being operated by the piston, which opens one and closes the other at each end of its stroke.

### Improved Cow Catcher.

B. F. McLung, of Troy, Ohio, has invented and applied for a patent upon an improved Locomotive Fender which consists in extending the cow catcher transversely, a sufficient distance to cover the entire front end of the locomotive, in combination with a guard placed outside of the wheels of the locomotive and train, whereby the animal, after being thrown from the track, is prevented from again getting upon it. The cow catcher is constructed with rollers instead of bars. We should think there were some good ideas in this improvement.

### Horse Rake.

Anson B. Dingman, of Mount Upton, N. Y., has invented an improved horse-rake, which consists in attaching the wheels to the shafts, and hinging the head at its attachment to the thills, so that nothing but the weight of the head is to be lifted, and this is done to much better advantage than where the fulcrum is at the front end of the thills—an excellent improvement. The inventor has applied for a patent.

### Drone Bee Trap.

Clark Wheeler, of Little Valley, N. Y., has invented a Drone Trap, or a box which is placed in the hive and is so constructed that the drones can pass in it, but cannot find egress while there is an opening at which the working bees can pass out. A patent has been applied for.

### Improved Churn.

R. W. Davis, of Rodgersville, N. Y., has invented an improvement in churns, for churning and working the butter. This invention consists in so constructing the dasher, that it may be adjusted by the resistence of the cream in revolving through it, so as to present six centripetal cutting blades to the cream, and then after the butter is separated, by reversing the motion, to present but two gathering blades, which gather the butter, work it in rolls, and expel the battermilk. A patent has been applied for.

### Screw Cutter.

David M. Robertson, of Manchester, N. H., has invented an improvement in machinery for cutting screws, which consists in attaching the dies to a series of vibrating levers or jaws, which are so arranged and operated that the dies may be brought into operation upon the screw, or opened to release it at the pleasure of the operator. The inventor has taken measures to secure a patent upon his invention.

### Hydraulic Engine.

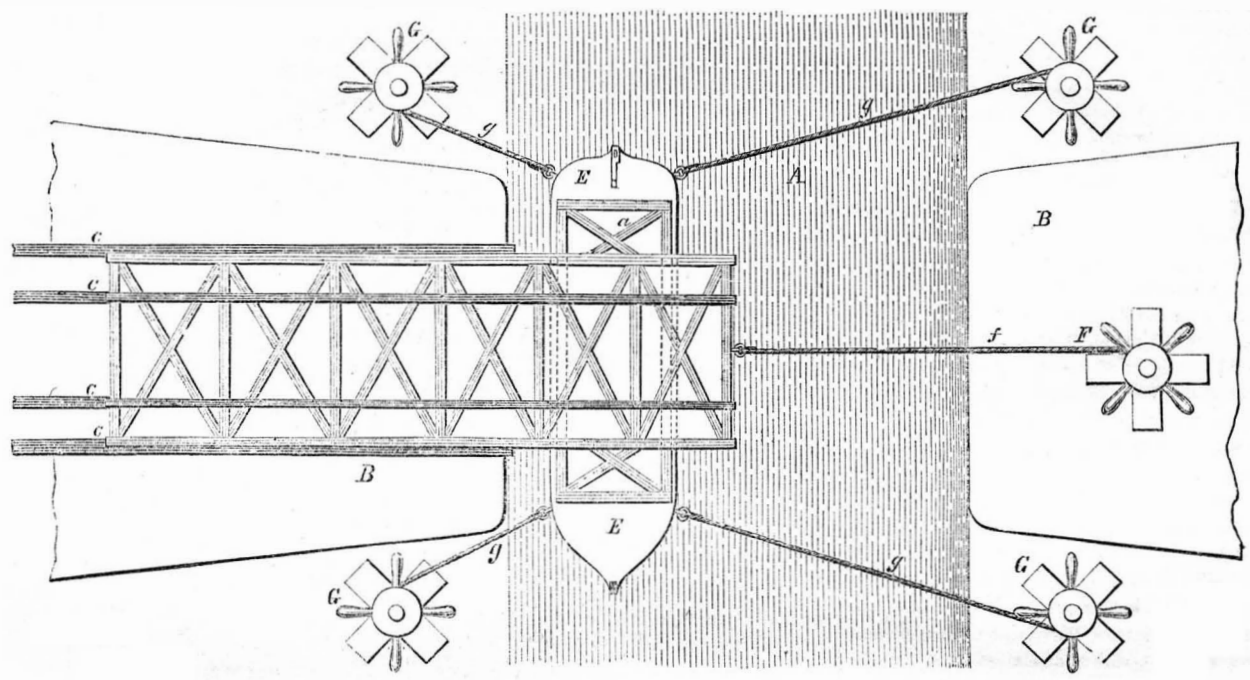
A. C. Carey and Jeremiah Smith, of Ipswich, Conn., has invented an improved Hydraulic Engine for a motor, to be applied to the propulsion of machinery. The nature of this invention consists in having two horizontal water cylinders, provided each with a valve and piston. The pistons have adjustable or movable heads, and the ends of the piston rods are secured to connecting rods or levers, which are attached to reverse cranks on a shaft having a gear wheel upon it, from which the power is taken. The water acts upon the pistons alternately, and a continuous motion is thus given to the crank shaft. A patent has been applied for.

### Plenty of Dear Gas and Little Light.

The "Chicago Tribune" of the 17th inst., states that without any *increase* of light, the gas meters in that city have indicated an increased consumption of gas, which in many cases have amounted to 100 per cent in one month. This is attributed to an increase of pressure in the gas pipes. The very same complaint is made by the Cleveland (Ohio) papers. The consumption of gas has greatly increased in that city also, owing to an increase of pressure in the main pipes.

The attention of the public has been directed to this fact through the colums of the "Scientific American" by Mr. Mascher's letter. Let the people of Chicago and Cleveland use burners for expanding the gas, before it passes out of the flame orifice, and they will obtain the desired remedy.

## CHAMPION'S MODE OF PASSING BRIDGES OVER STREAMS---Fig. 1.




The engravings herewith presented are illustrations of T. & S. Champion's improved mode of passing bridges over rivers.

Figure 1 is a side view, and fig. 2 a top or plan view of a bridge being passed over a stream by this plan.

The bridge, it will be understood, is first built upon the ground at about a level with its intended position, and is then placed upon the trucks, D D. The abutments, B B, having been previously prepared, a vessel, E, having upon it a frame-work, *a*, of a height nearly equal to that of the abutments, is placed in the stream, A, and a sufficient supply of water is admitted to float it so that the top of the frame shall be on a level with the top of the abutment. The ballast water is regulated by means of an inlet valve and a pump.

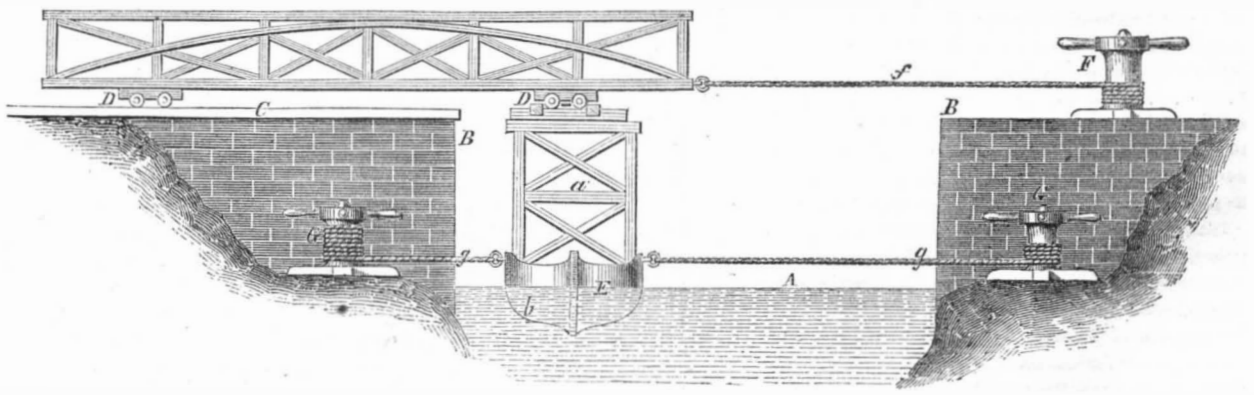
All these matters being properly adjusted, the vessel is drawn up against the side of the abutment, and by means of the trucks, one end of the bridge is easily placed upon the frame, *a*. This will of course sink the vessel deeper in the water, and a portion of the ballast water must be pumped out, to raise the frame-work again to the level of the abutment. When all this is prepared, by means of the capstans, F G, the vessel and the bridge upon it are floated across the stream.

The bridge, it will be observed, is placed on a roller carriage, so that it can be drawn with great ease by the use of the capstans. The ends can then be lifted by jacks, when the bridge has reached its proper position, so as to take the carriages from it. When it is remembered that very heavy bodies were raised and moved by the ancients through the mechanical agencies of capstans and windlasses, no limits can be set to the weight of a bridge, which may thus be floated into position. The work of lifting a tube weighing 1200 tons, 100 feet high, has been successfully accomplished by a hydraulic ram worked by a steam engine; the method here proposed to accomplish a like object (to lay the bridge on its abutments) appears to be more simple and ingenious, than that brought into requisition at the building of the Great Britannia Tubular Bridge.

We think this an excellent device for the purpose which it is intended to accomplish, and have no hesitation in recommending it to the attention of engineers and all others interested, and we are confident there are many situations where it will prove of great assistance, and save a great expense now incurred by the erection of such bridges in separate pieces over rivers and creeks. Of course it is not suitable for rivers and creeks, the waters of which are not of sufficient depth to float the bearing vessel, but in such situations scaffolding can be easily erected. It may be said, "why not employ a floating scaffolding like this to build a bridge across from abutment to abutment, with out building it on land, and then being at the trouble to float it across to its resting place?" But it is well known that the work can be quicker and better done by building it on land, as the workmen can apply themselves more conveniently than on a scaffolding, and is certainly a much safer plan.

For further information address the patentees, Washington, D. C.

## Figure 2.




### The Caloric Ship "Ericsson."

Last week, our daily papers stated th at this ship, with entirely new engines, was to make her trial trip this week. They also stated that it was to be put on the Havre Line, in place of the Humboldt, which was wrecked at Halifax. It is now about a year since her first trip, and in that time it has only made three, and then had to get in new engines. This looks very like superseding steam, but we shall have something more to say about it by and by.

We shall next week announce the names of the successful competitors for the $450 prizes.

### Instantantaneous Kindling of Fire in the Human Body.

The "Courier de l'Eure" communicates to the world an account of spontaneous kindling, though no combustion, in the person of a mantua maker. This young lady was sewing one night by the light of a candle, when she felt an undue heat all over her body. She noticed at the same time that her forefinger was on fire. The flame was bluish and emitted a sulphurous smell. She plunged her hand into cold water, and wrapped it in moistened cloths, but the burning still continued, and spread over her hand. Her apron caught fire, and she was obliged to take it off. The flame was only visible in the dark. The girl spent the night in efforts to extinguish the blaze, and only succeeded at day-break.

[We have seen the above in a great number of papers. Any scientific man will at once pronounce it a sheer fabrication to astonish the groundlings.

### Cast-Iron Canal Lock.

A Sunbury paper says, the cast-iron outlet lock in the Philadelphia and Sunbury Railroad Company's basin, at that place, is nearly completed.

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Scientific American.

NEW YORK, DECEMBER 31, 1853.

### Agricultural Improvements.

Since the days of Sir John Sinclair—the esteemed friend and correspondent of Washington, and one of the great men of the earth—no science has received more general attention than that of agriculture. This at least is particularly true with respect to the past twenty years agricultural experience of our own country. When we look back over that space of years, and contemplate the many improvements in farming which have been made, we have great reason to congratulate our farmers for the spirit, intelligence, and good sense which they have exhibited. Agricultural Societies are established in every State for the purpose of inciting, by emulation, to renewed improvements; agricultural periodicals to spread useful information on all that relates to the cultivation of the vegetable and animal kingdoms are numerous, and in many of our colleges Chairs for the teaching of agricultural chemistry have been endowed. The most eminent living chemists have enthusiastically drudged in the stable and furrow, and have analyzed the muck heap, the rock, the blade of grass, the golden corn, the yellow wheat berry, the cabbage, the oat, the bean, and the pumpkin, in order to extort from nature the secrets of her wonderful chemical manipulations. So signally successful have some chemists been in their researches into organic and inorganic chemistry, as related to the nature and composition of those plants and cereals which universally constitute the food of man and beast, that many think we have reached the acme of agricultural knowlege. Liebig and all scientific agriculturists are right in respect to vegetable equilibrium, for plants will not, any more than men, grow without aliment, and the soil on which they grow must be provided with food convenient for them. But what has been the practice in obtaining that supply of food? not very scientific indeed. From a field of hay, corn, or wheat, for example, we obtain every year one hundred times more weight of vegetable product, than the amount of fertilizing matter supplied by the farmer, and yet fleets of ships are employed both in Europe and America, to go to the far off Lobos Islands for guano, to sell to farmers at $50 per ton, in order that two or three table spoonsful may be applied to each hill of corn, or a few grains of it applied to each stalk of wheat. Does that manure multiply in amount by chemical investment in the earth, like bank or railroad stock, so as to provide such food as will change one pound of manure to 100 lbs. of stalk leaves and grain in the plant? Certainly not; but we know that fields once the most fertile, have been rendered barren sand-wastes by continual cropping without manuring, and these same fields have been made to bring forth abundantly again by artificial fertilizers. At the same time it is also true that every crop obtained from any soil receives its greatest amount of nourishment from some other source than the barn yard, the Lobos Islands, or Prof. Mapes' super-phosphate of lime. The manipulations of nature's vast laboratory are conducted on the principle of supplying the waste in one part of the world from a superabundance in another; the atmosphere purifies itself, although hundreds of millions of tons of carbonic acid gas are thrown into it every day, and certainly science points to a possibility of providing the necessary conditions for the supply of an abundance of food for all cultivated plants, from the great laboratories, *earth*, *air*, and *water*, and that without national contests about obscure manure islands, which by situation and nature are only fit abodes for sea fowl and seals.

The principle constituents of plants are hydrogen, oxygen, carbon, and nitrogen, and it has been laid down as an agricultural maxim that the amount of ammonia in manure is a true criterion of its value. This is a compound of hydrogen and nitrogen; water is composed of oxygen and hydrogen, and our atmosphere is composed of 5 of nitrogen, to 1 of oxygen. Here then, are inexhaustible magazines of the prime elements of food for cereal plants, and as carbon forms the principal and nearly the whole of the leaves and stalks, it follows that where these elements are in abundance, science only is wanting to combine and unite them in such a manner as to produce plenty of plant food. Schleiden, the German chemist, admits of no relation between the fertility of a soil and the fertilizing matters expended upon it. "The goodness of the soil," he says, "depends upon its inorganic constituents, so far, at least, as they are soluble in water, or through the continued action of carbonic acid, and the more abundant and various these solutions are, the more fruitful is the ground." On the very best cultivated farms much more is carried off than is returned by the farmer, for 4,400 pounds of meadow hay contain 2,000 lbs. of carbon, and to produce this amount no less than 7,320 lbs. of carbonic acid is necessary. Water is the grand aliment of all plants; without it there can be no vegetation, as it requires 200 grains of water to pass through a plant for a single grain of solid matter to accumulate within it. Where there is an abundance of water, and plenty of evaporation, with carbon in the soil in the form of vegetable deposits, or carbonate of lime, good crops never fail to be produced.—There is ammonia in most of the rain water which falls, and if there is not, the oxydization of the protoxydes of metals which are found in almost all soils, will decompose water, during evaporation, and the hydrogen which is liberated will, in its nascent state, attract an equivalent of nitrogen from the atmosphere, and thus form ammonia. If the soil is able to condense it, the proper food will be afforded for the grain, as the rains and heavy dews take it up and supply it to the plant to form the golden berries of wheat and corn. We have thrown out these remarks in order, if possible, to direct attention to other sources of improvements in agricultural chemistry, than those on which chemists and farmers have hitherto been expending their thoughts, toil, and money; the field for improvement is still broad and wide.—To the farmer a thousand texts can be preached from two words, "experiment" and "diligence."

### International Copyright.

Much has been said, and more has been written upon the question of international protection to the author. But as some slight encouragement has been given to hope that Congress will, during the present session, take into consideration the interests of inventors, and as he who has wrought the creations of fancy, or has discovered and collated facts in the nobler domains of truth, is as much an inventor as the mechanic, who, in his workshop has begotten some labor-saving implement, we think it may not be amiss to revive the discussion at the present time.

The truth assumed as the basis of our argument may, however, need further proof. Is the author really an inventor, and is he, as such, entitled to the protection afforded to that class by the laws? It may be urged that literary works are often nothing more than compilations, nothing often but treasures stolen from the wisdom of antiquity, newly polished, but in value unchanged. This is truth, but is not the machine produced by the inventive genius of the mechanic a compilation too? Are not the wheels and levers of which it is composed, devices as old as the sources from which the author has drawn his information? And as the inventor who has only improved upon the works of another, is protected but in that which is his own, so the author's protection is only upon the improvement made upon his original, for that is still as free to others as it was to him.

But this question has been already decided; and our own as well as other nations has guaranteed to him who, toiling by the light of the midnight lamp, has given birth to a mental creation of any kind, the protection alloted to those in another department of labor. The question now is, shall the property which is guaranteed as private by the laws of all civilized countries, become lawful plunder, if carried from one of those countries to another? The works of the mechanic are protected, but shall those of the scholar, not less arduous, be liable to be seized and converted to the private use of any and all, the moment they have passed those boundaries, natural or artificial, which are set between nations?

We do not think this policy has ever been defended from the assumption of its justice. Indeed, we are unable to conceive the shadow of a reason which might be urged in favor of such a claim. Those who have dealt the most largely in this species of robbery, have defended themselves and the system which upheld them, with subterfuges instead of honest argument. More often, indeed, when assailed by those who were the sufferers from their conduct they have made no excuse, but have laughed at those who complained of their injustice, and knowing well that no redress could be obtained from them by the injured parties, have revelled in their illgotten wealth, while those who had laid the basis on which they had built their gigantic fortunes were starving in a garret or rotting in a cellar.

We know that it is the first duty of a government to protect its own citizens. But in the present instance, the measure we are advocating is as necessary for the protection of our own writers, as for those of foreign countries. There are not many books possessing such exclusive merit as to render them above competition; there are a few indeed which will, under any circumstances, be read by the million, but not so with most. The American author, protected though he may be by the laws in his own copyright, must nevertheless, come in competition with the works of Englishmen, issued by pirating publishers at a price so low as to leave no margin for a remuneration to him, if he will not be under-sold by them in the market. No wonder that our people, already prone to undervalue everything that is of American origin, should fill their libraries with the works of foreign writers to be had at a rate so much cheaper than those of our own, and leave works of equal or greater merit to mildew upon the shelves of the bookseller.

But we do not like this narrow view of the question. It is about time that we should consider ourselves as cosmopolites—as Americans first, proud of our country and its noble institutions, but then as citizens of the world! This man is English, is French, or is German, indeed, but he is a fellow citizen! He is entitled to equal rights with ourselves, and has equal claim to the protection of law. We do not mean that a government should not favor its own citizens, but we mean that it is time the Laws of Nations should be made to become something more than a code in which wretched diplomatists may find subterfuges for petty intrigues, that would be a life-long disgrace to a private citizen. We mean that the period in the history of the world has come when Foreign Ministers should have something to do besides playing the ape at a masquerade, and cheating their fellows in a national game of "poker."

### Woodworth and Goodyear Patent Extensions.

In the telegraphic reports of the New York daily papers of the 21st inst., we find the following statement:—

"The agents of Messrs. Woodworth's and Goodyear's patents are preparing to extend their business, by special act of Congress. There are, however, a number of opponents very active against them."

This fully confirms the truth of our statement made in No. 10, in respect to these patents, and it should act as a powerful stimulus upon all those who, from principle, are opposed to these extensions. Our position is well understood by the readers of the "Scientific American," but we notice with regret that some of our most able and trusty co-operators last year, are now either dumb or are avowedly friends to the Woodworth Extension scheme. There is danger,—let all those who feel upon this subject, be active in their efforts to bring public opinion to bear upon Members of Congress.

We have not a farthing's interest in the matter, it cannot effect us for good or evil, but a host of inventors, manufacturers, and mechanics are liable to sustain immense injury thereby, therefore they should organize in one determined effort to thwart the movements of these schemers, and speculators. In volume seven we devoted column after column to the discussion of this subject, and have presented every argument which we deemed important, to effect the object in view.

Our readers who are specially interested cannot expect us to devote much more space to its consideration, therefore we shall, in future, briefly allude to the efforts of the schemers, without entering upon lengthy discussions of the merits of the case, which are bad enough to insure its defeat.

We are irrevocably opposed to the extension of either of the patents in question, and are prepared, when our services are needed, to exert what personal influence we possess. Some active and trusty person should be employed to watch the movements going on in Washington and report progress: our daily paper reporters do not feel interested in the matter, and are therefore not expected to keep the public advised. We recommend our readers to read carefully the Report of the House Committee, published in Vol. 7,—it is truthful and powerful, showing up the Woodworth patent in its true condition.

### New Year's Presents.

As it is customary for fathers, employers, and friends to make presents at the New Year to their sons, apprentices, workmen, and acquaintances, we do not know of any kind of gift more appropriate and useful than a good book. We have had the pleasure, every year, of supplying many orders for the "Scientific American," to fathers who have sons learning mechanical trades, and to employers for their apprentices, and in a great many cases, to their journeymen. We are confident that young mechanics of every trade cannot possess a better work for their own benefit. It is a work which contains a record of all the inventions, improvements, and discoveries made in our country and the world, and it presents interesting information on every branch of science and art. Without a knowledge of these things no young mechanic or artist can expect to attain distinction or become intelligent in his calling. We have received many letters at different times from persons who had received such presents, all of them expressing gratitude for the kindness and good sense displayed by those who had made the gifts.

### Foreign Compliments to the Scientific American.

"The Scientific American is an illustrated Panorama of the industry of both Hemispheres published by Munn & Co. N. Y. 128 Fulton St.

The ninth volume of this magnificent publication was commenced on the 15th September. Savants, manufacturers, inventors and all persons who, from any title, are interested in the progress of the arts and sciences, have been engaged to contribute to it.

This publication is a mirror wherein is reflected all the attempts, all the endeavors, all the experiences, all the results of modern inventions. The savant can here find the steps which genius makes each day in the paths of science. The manufacturer draws from thence perfections of art, which must modify constantly the conditions of labor. The inventor there beholds clearly the discoveries already made, and is spared from useless researches and labors. The merchant too, finds there precious documents. The public in short learns each week what is new in the universe of arts and industry.

England has many similar publications but no journal in the three nations has obtained or merits the immense success which has made the fortune and glory of the Scientific American."

[We translate the above from a monthly journal of science and art entitled L'Invention, published in Paris, under the able direction of M. Gardissal a distinguished savant, and accomplished gentleman. The flattering praise bestowed upon the Scientific American is, we think attributable to the pleasant intercourse which has for some years existed between ourselves and the Editor of L'Invention.

We certainly feel grateful for the friendly salutations, leaving others to decide how far our journal merits the high encomiums pronounced upon it.

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*Prolific Pomgranate Cotton.*—In a letter from C. D. Mitchell, of Cedar Grove, Warren Co., Miss., dated December 1850, and published in the "Southern Cultivator," it is stated that in one field from six to eight hundred pounds per acre used to be raised, and that from one acre and three quarters of the same land he picked 4,897 lbs. of the "prolific pomgranate" cotton, which amounts to 60 times more than what is raised in many of the Madras fields. This cotton is said to be of fine staple; its name is certainly a very appropriate one. We wish that more cotton had been displayed in the Crystal Palace, and that classes of samples were well exposed and arranged, and fully labelled, giving an account where they were raised, the amount produced to the acre, &c. Something can yet be done to carry out this suggestion.

It is our opinion that no nation can compete with America in the cultivation of cotton. England has tried it and failed, and the reason is obvious to us. Our large planters are generally both practical and scientific.—They are mostly well educated, and bring extensive information, keenness of intellect, and great practical knowledge to bear upon their profession. These qualificatians give them advantages which cannot be obtained—(because there is no where else the same class of men) by any other nation.

A boll of this cotton is exhibited in the Crystal Palace, by Mr. Mitchel, in which the world is challenged to produce its equal.

There are a few other samples of cotton—such as one by J. West, of Eufaula, Ala., it is short upland, of good quality.

*Jethro Cotton.*—A bale of cotton of this name was sent to the World's Fair, in London, as the sample of upland selected by the Committee of the Charleston Institute, S. C., for its great length, strength, and silkiness of staple. It is a native of Georgia, and was cultivated near Augusta, in that State, as we learn by the "Southern Cultivator." Its product is about 470 lbs. to the acre, and is sold in Charleston for two cents more per lb. than any other uplands. Upon the rich lands of the southwest it has been asserted that 2,000 lbs. of this cotton could be raised to the acre—a great crop truly—we have seen no sample of this cotton in the Crystal Palace.

*Sea Island Cotton.*—We have noticed two samples of this famed cotton in the Palace, but have not been able to obtain the names of the exhibitors. One sample is beautiful and white; it has not that peculiar creamy color which generally distinguishes this species.

Many have heard of this kind of cotton who know nothing about its nature, or the peculiar features which distinguish it from all other kinds. The great majority suppose—from its name—that it is grown on some islands of the sea, on our southern coasts, or else that some island far o'er the sea is the place from which it came. There is something valuable in a name when appropriately applied, as has been done in this case.

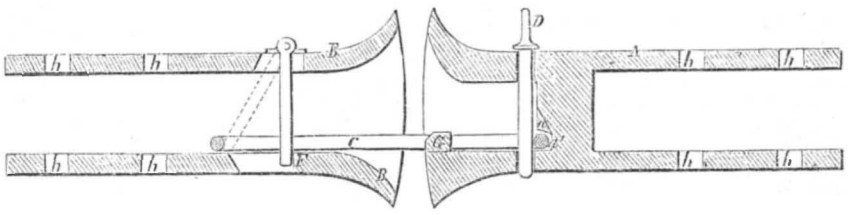
The introduction of this kind of cotton dates back as far as the year 1789; the first planter who cultivated it resided in the Island of Sapelo near the mouth of the Alatamaha Sound, in the State of Georgia, his name was Francis Levett. The discovery of this cotton is said to have been a pure accident. A friend of his—P. Walsh,—residing in Kingston, Jamaica, sent him during summer three sacks of Pernambuco cotton seed, but these were not looked upon as anything very valuable by the recipient, he having plenty of other cotton seed of his own. Being in want of the sacks in the fall of that year, he emptied the seed out on a manure heap, the bags appearing to be more valuable to him than their contents. In the spring the seeds sprung up into plants, and Mr. Levett, being pleased with their appearance, he transplanted them upon two acres of ground, which yielded an abundant and most beautiful crop, the quality surpassing anything of the kind he had ever seen before. From this small and mysterious beginning of cultivating Sea Island Cotton, we are indebted for the finest quality of the material known at the present moment in the world. The criterion for judging of the value of cotton is length of staple, silky softness, and strength; these qualities distinguish the "Sea Island" above all other varieties. Long fibers are more easily spun, and can make finer thread than short ones, and the finer these fibers are the more attenuated is the thread which can be made from them.—No other cotton is employed for making the fine Nottingham lace, and there are some qualities of it which are purchased at almost any expense for making lace thread. We have been informed that some English companies employ an agent at Charleston, S. C., for the very purpose of selecting and securing the best qualities.

The subject of cotton will be resumed next week, with illustrations of the roller and saw gins.

The Minerological Department at the Crystal Palace attracts much attention:—

New Hampshire is the only State that furnishes tin. Cobalt ores and bismuth are exhibited from Connecticut, and cobalt from Maryland; chrome from Pennsylvania, and the new mineral called emerald nickel, from Lancaster, Pa. The extensive use of nickel in the manufacture of German silver, gives interest to every discovery of it. All parts of the Union furnish iron, but Pennsylvania excels in the number and variety of specimens. North Carolina furnishes handsome specimens of phosphate, carbonate, and sulphuret of lead.—There are silver ores from South America, Mexico, and Europe; but none from the United States, except in connection with lead.—California is the only State which sends an ore of quicksilver.

## NEW CAR COUPLING.

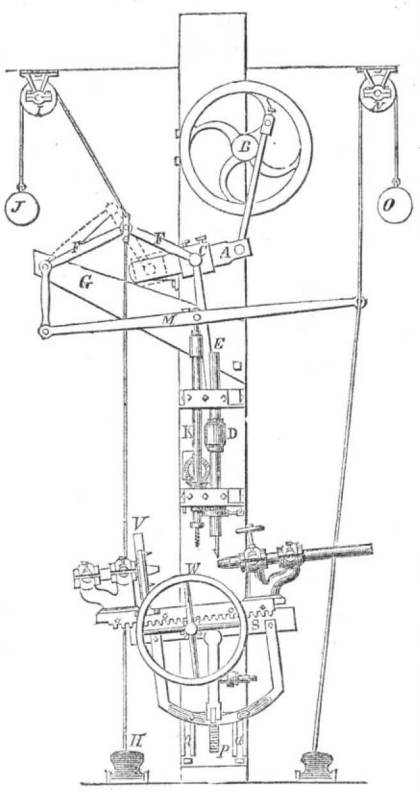


The annexed engraving is a sectional view of an improvement by the inventor upon the car coupling patented by him on the first of last month. A and B are the buffers, to be made of iron or other material sufficiently strong to resist the shock of collision when the cars come together; C is the link by which they are connected; D is the bolt connecting the link to the buffer, A, which has a recess, *a'*, for the link to press against when the cars come together. To couple the cars, the pin, D, having been previously inserted in the link, it is only necessary to run the cars together, as the pin, F, being hinged at the top, the link striking against it, will throw it backwards in the position indicated by the dotted line, when it will drop inside the link. The projection, G, is intended to prevent the car from separating by the recoil if run together while the pin, D, is removed preparatory to uncoupling.

The operation of this coupling is readily understood from the engraving, so that a lengthened description is unnecessary.

For any further information address the patentee, A. P. Chatham, Canoga, Seneca Co, N. Y.

### Guild's Boring and Mortising Machine.



The annexed engraving is an illustration of Boring and Mortising Machine, patented by a Joseph Guild, Nov. 30, 1853, and manufactured by Lane & Bodley, of Cincinnati, Ohio, to whom all orders should be addressed. This firm, and that of Geo. H. Knight & Brother, of the same city, are joint owners of the patent.

The machine, as may be seen, is firmly secured to an upright post. A is a vibrating arm supported by a short shaft; it is supported by a short shaft, keyed near the left end, working in boxes upon the post. This arm is impelled by means of a pitman attached to a wrist-pin in the balance wheel, B. Upon this arm is fitted a sliding block, C, which grasps it by the front side and the top and bottom edges—the edges being formed beveling towards the back. In the upper side of the block, C, is a "lining strip," with set screws to keep it tight upon the arm. Upon the center of the front side of this block is a wrist, to which is attached a connecting rod that reaches down and grasps the wrist, D, on the chisel mandrel, E. This wrist is not keyed fast, but is confined between collars so as to leave the mandrel face to rotate in reversing the chisel. To the same wrist, on the block, C, is attached one end of the toggle-joint, F, the other end of which is attached to a collar bolt, screwed into the projecting piece, G. To the centre of the toggle-joint is attached a rod extending down to the treddle, H, and also a cord running over the sheave, I, and sustaining the weight, J. The boring bar, K, is driven by miter wheels—the one keyed on a sleeve containing a feather, through which sleeve the bar is free to move longitudinally. The other wheel is fastened to a shaft passing through the post, and having on its outer extremity a small fast and loose pulley driven by a belt from a pulley on the main shaft, B. To the upper end of the boring bar is fastened a cap (not partaking of its rotary motion), which forms the point of attachment to the lever, M, by which it is raised and lowered. This lever is attached at one end by a pendant joint to the same pin that supports the outer end of the toggle joint; to the other end of the lever, M, is attached a rope that reaches down to be operated by the foot, and another that passes over the sheave, N, and supports the weight, O, which retains the boring bar at its highest point when not in use.

The machine, as represented, has a carriage for mortising hubs, but there is also belonging to it a carriage for mortising timber not more than 12 inches square. To the post is bolted a guide plate, P, having ways planed upon it, upon which is fastened, by bolts moving in the slots, A A, a casting having a center pin, upon which the lower part of the carriage, S, vibrates to obtain an angle. The carriage also slides upon it to and from the post, to gain different distances from the edge of the work. This is accomplished by a screw (not seen in the figure.) The carriage being fixed at the desired angle, is held in its position by an eccentric clamp, the handle of which is designed to be moved by the foot. The carriage is raised and lowered by a pinion which works in a rack on the guide plate, P.

The strain upon the outer end of the center pin is received by an upright screw. The carriage is moved horizontally by the hand wheel, W, which works a pinion in a rack on the under side. V is an index plate to space the mortises on the hub. In mortising square stuff the action is similar, with this exception,—the wood is confined in a right angle instead of being hung between centers, as in hubs. The chief superiority claimed for this machine is the vibrating arm.

To understand the operation of the machine, suppose the balance wheel in motion and the arm vibrating; while the sliding block remains in the position designated by the dotted lines, the wrist to which the connecting rod attached to the chisel mandrel is hung, is concentric with the axle on which the arm vibrates, and consequently has no motion but a partial rotation, and the mandrel is stationary. Let the foot be slightly pressed upon the treddle—the toggle joint is somewhat depressed, and the block is moved out upon the arm and begins to partake of its motion. As it is further moved, it acquires a greater range—always rising to the highth at which it stood at first, and extending its motion downward. When the foot is removed the weight, J, instantly raises, the toggle joint draws the sliding block back to its central position, and the mandrel as instantly ceases its motion.

There are some features about this machine worthy of notice. Various patterns and sizes are manufactured.

### Anthracite.

The "Melbourne (Australia) Argus" exposes what the editor thinks a most impudent but amusing humbug of some Yankee speculator, the attempt to palm off anthracite coal as something that will burn. He denounces the imposition in this style:—

INCOMBUSTIBLE FUEL.—We feel bound to warn the public against a species of coal which at present is being offered for sale in Melbourne; and which, although it looks like coal, breaks like coal, smells like coal, and feels like coal, has this trifling difference—that coal has a tendency to burn, and this has not. A greater imposture was never palmed off upon a fire loving world. The great blocks lie piled on the fire like stones, not only not burning, but apparently incapable of being warmed through sufficiently to fly. We were victimized to the extent of a few tons, to the great disgust of our engine fires, and if useless for any other purpose, we can recommend them as the most effective fire annihilators that we ever saw or heard of. America, we believe, has the honor of the production of this valuable and most unique article. It is worthy of the land of wooden nutmegs!"

The day after the above paragraph appeared a correspondent wrote a note to the "Argus" man, telling him how to use the coal. The editor says:—

"We were very much obliged for the information contained, but as it is not always convenient to be changing our furnace, we have adopted the more ready expedient of changing our coal merchant."

This is a very funny disquisition on the fuel which is almost exclusively used in this city.—The editor of the Argus has much to learn yet in the way of burning coal. We do not wonder at his ignorance, for the anthracite coal when first tried in Philadelphia and Cincinnati, was treated in the same way as it has been in Australia. The editors of Melbourne will live and learn.

### The Great Republic.

A letter from the New York correspondent of the Boston "Post" says, "a Baltimore house has offered Mr. McKay, the owner of the "Great Republic," $20,000 above the cost to construct her, which offer has been refused. The entire support of this vessel, when in sailing condition, will cost nearly $12,000 a month." The "Great Republic" has taken as much freight as she can cross the bar with at Sandy Hook. She is bound to Liverpool.

A new line of steamers between Portland, Maine, and Liverpool, has been established.—The "Sarah Sands," has already made one passage—the pioneer of the Line.

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## TO CORRESPONDENTS.

J. W. W., of Ala.—The artesian well tubing is made and sold by Thos. Prosser & Sons, No. 20 Platt street, this city. Your letter will be handed to them for attention.

C. B., of Mass.—No patent can be secured upon a car truck each wheel having an independent axle: we had a model in the office, over a year since, of the same construction.

W. H. Brown, Erie, Pa,—Would feel obliged to any makers of tools used in cutting out ice, if they would address him as above.

F. S., of N. Y.—Scroll and V-shaped buckets, and all forms of steam and water wheels, have been used.

J. A., of Mass,—What object Mr. D. had in inditing the said article, we cannot tell.

D. B., of ——.—In tinning iron, did you cover the surface of the tin with tallow, or some ground glass, as a wiper? If not, do this, and try again.

M. B. F., of N. Y.—We do not know any mill which uses wire cloth for fine bolting.

C. E. M., of N. J.—Take the capacity of your feed pump and count its strokes. and by that you will obtain the amount of water fed into the boiler. You must know the amount discharged at each stroke of the pump into the boiler. When you know the quantity of water required, you can easily calculate the amount evaporated by one pound of coal.

G. A. F., of Texas.—There are various salts of iron we suppose the salt of steel, which you speak of. is the sulphate of iron; if not, we cannot tell what it is by the name given.

M., of R. I.—We have a rule for the power of pulley belts, but cannot lay our hands on it at present. We will try and find it for you.

Myron Cory & Co., of Jerseyville, Illinois, are desirous of obtaining information in regard to machinery for manufacturing coarse paper. Doubtless some of our readers can inform them.

K. J. J., of Wis.—An application is now bofore the Patent Office which covers the principle contained in yoursketch. The invention referred to has been made for some time.

T. P. P., of Ind.—E. A. Pond, Rutland, Vt., is the patentee of the pill machine to which you refer as having been patented in 1852.

J. P. H., of Va.—We have confidence in Renton's wrought iron making process, but before adopting it, or any other, we advise you to visit the works in operation at Newark, N. J. By applying to A. H. Brown, of that place, you can procure all the necessary information. An engraving and full description of this furnace we hope soon to publish.

G. H., of Ky.—Your plan for a Broadway Railroad is very good, but it has been several times proposed to us. We do not think it will ever be adopted, owing to the opposition of property owners. They would prefer the grooved rail, laid in the street.

A. N. of N. Y.—Your feeding apparatus for printing press has frequently been thought of.

E. T. S., of Pa.—The only reliable cement known to us for fastening machine belting, is the "rivit." We should not dare to trust anything else.

E. L. B., of N. Y.—Your method of hanging saws like a belt, to run from one drum to another, is not new. Tho ame thing has often been proposed to us.

I. M. P., of Tenn.—Cast iron hubs are in use, and have been for many years. They are made light and serviceable. We do not discover any patentable feature in your alleged improvement.

J. R. G., of ——.—We should have written you before, had you furnished us with your residence. The improved corn planter has been examined, and we think a very limited claim can be secured upon it. As to the propriety of making application upon a considerable of an uncertainty, you must judge for yourself.—We do not know of any work devoted to the subject of carriage painting.

A. R. T., of N. Y.—Your proposition to place a strip of india rubber between the tire and felloe of carriage wheels, is not patentable.

E. W., of N. Y.—The inclined matching saws, when combined with feed rollers, are considered by the owners of Woodsworth patent as an analogous device, and is claimed by them, both separately and combined with the planer.

S. M., of Ala.—The duty on machinery is the same as for any other manufactured product, but it is against the laws of England, if we are not much mistaken, to allow cotton and woolen machinery to be exported to foreign countries.

A. C., of Ct.—Water is a very good conductor of electricity, but not so good as copper, and not so convenient for houses. Your bundle of wires will answer very well for a conductor—non-conductors are often torn in pieces by the fluid, in passing from above to the earth.

M. S. W., of Mich.—A double crank for working two cutters is an old device, and nothing is gained by the use of these cutters except complication of machinery.

G. W. S., of N. Y.—We will prepare your specification and send it up for your signature in about ten days.—You can manufacture and sell your fasteners while the application is pending; and, if you choose, may stamp them: "patent applied for"—not patented.

N. T. B., of Ohio.—A "Stenographic Reporter," or machine for reporting lectures, etc., was patented some two years since by J. B. Fairbank, of Leon. N. Y. Send on for publication your system of calculating cog wheels and their changes. All the volumes of the Sci. Am. cannot be obtained. Your ideas about city railroads, perpetual motions, etc., are not very far out of the way.

J. H., of Ind.—We do not think any patent can be secured on your alleged improvement in saw teeth.—The principle is similar to the fleam tooth, although not formed in the same manner. In Tuttle's saw, a tooth is used like this, in combination with a fleam tooth.

C. A. J., of N. J.—There is nothing new in your proposed arrangement for applying manual power to its best advantage. The same device is well known under the designation of "Velocipede."

M. B. W., of N. Y.—Minifie's Mechanical Drawing Book is a good work for you to gain instruction from. Price $3. The Machinist's Drawing Book, published by Blackie & Sons, 117 Fulton street, is also a capital work.

C. D. A., of N. Y.—Your method of feeding papers to a printing press, by means of air pumps and other devices named, has frequently been proposed, and an application for a patent has been for some time pending before the Patent Office.

E. J. A., of N. H.—Such a spirit level as you propose has been patented by Dr. Lock, of Cincinnati.

H. & B., of Watertown.—We cannot afford to waste more time in correspondence with you. The engraving we had executed and published for you cost us over $30 without any charge for publication, and if you are not willing to pay HALF the cost of it, we prefer you would pay no part of it. The bill of the stereotypes we sent you was made out by F. & Co., and paid by us in cash. We thought the price of them cheap at $1,50 each for so large engravings, for we never before were able to procure duplicates of three column cuts for less than $2 each; however the amount may look large to you, but it does not seem much to us, so we can lose it.

H. H., of Ohio.—Your plan of propulsion is the same as a screw—there is no difference.

S. N., of Ill.—We do not know of sugar being made from the New Orleans molasses. It contains considerable sugar, but it costs more to obtain it than would be profitable to the refiner.

N, W., of N. Y.—There is no such a thing as a superior or inferior pole of a battery; the zinc pole is named the positive. It is best to solder the strips to the plates, but the wires do not require to be soldered, only in contact with the strip of metal. It is best to have the wire point near to the solid metal to be decomposed.

☞ Unsigned Communications are rejected unless there is abundant reason to believe that the writer is ignorant of his duty in this respect. It is not at all likely that we shall make an unwarrantable use of the names of our correspondents, therefore why withhold their names.

Money received on account of Patent Office business for the week ending Saturday, Dec. 24:—

G. W. C., of Mo., $17; G. A. B., of Ill., $115; J. H., of N. Y., $200; G. W. S., of N. Y., $50; S. P., of ——., $10; T. R., of N. J., $20; T. G., of R. I., $30; W. H. B., of Pa., $15; A. M., of Phla., $55; J. H. H. B., of N. Y., $35; J. R., of Mich., $30: J. D., of Pa., $10; W. C. W., of Mass., $20; I. M. N., of Vt., $30.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Dec. 24:—

G. W. R., of Ky.; T. G., of R. I.; W. H. B., of Pa.; R and M., of Ill.; A. B. D., of N. Y.; W. C. W., of Mass.: R. V. De G., of N. Y.; F. M. K., of Tenn.; G. W. C., of Mo.

## LITERARY NOTICES.

FRANK LESLIE'S LADIES' GAZETTE, of Paris, London and New York Fashions, Number One, for January.—This is the title of an elegant quarto just commenced in this city, by Frank Leslie. Its object is to elevate the standard of our national fashions, by stimulating the talent which exists among our people, in this as well as in all branches of industry. For many years we have aped the fashions of European nations, much to the discredit of the good taste and judgment which are among our national characteristics This journal supplies at once a national want, and in its appearance it does credit to its projector. The number before us is profusely illustrated with almost every article which makes up the wardrobe of the lady or the child. The engravings are artistic, and the typography and "general making up" are creditable to all concerned. Terms of the Gazette, $3 per annum: 25 cents each number. Office, No. 6 John street, New York.

THE NEW HYDROPATHIC COOK BOOK, with recipes for cooking on hygienic principles, containing also a philosophical exposition of the relations of food to heaith: the chemical elements and proximate constitution of alimentary principles; the nutritive properties of all kinds of aliments; the relative value of vegetable and animal substances; the selection and preservation of dietetic materials, etc, with numerous engravings, By R. J. Trail, M. D. Fowlers & Wells, Publishers, 131 Nassau street, N. Y. We can recommend this as an excellsent work for family use, The information is sound and practical.

GODEY'S LADY'S BOOK for January, from Messrs. Dexter & Bro., is received, and is a very fine number, if we may except a miserable batch of wood engravings, which are no credit to anybody. The other illustrations are good.

CLOVERNOOK (Second Series)—is the title of a new work from the pen of Alice Carey. It is, we can assure our readers, a book worth reading, and we advise them to send immediately to the booksellers and get it. It is one of the books that are just the thing to drive off a fit of "ennui," or the "blues." J. S. Redfield & Co., Publishers.

## A Chapter of Suggestions, &c

PATENT LAWS, AND GUIDE TO INVENTORS—We publish and have for sale, the Patent Laws of the United States—the pamphlet contains not only the laws but all information touching the rules and regulations of the Patent office. Price 12 1-2 cents per copy.

RECEIPTS—When money is paid at the office for subscriptions, a receipt for it will always be given, but when subscribers remit their money by mail, they may consider the arrival of the first paper a bonafide acknowledgment of the receipt of their funds.

BACK NUMBERS AND VOLUMES—In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement: Of Vols. 1, 2, 3, and 4—none. Of Vol. 5, all but six numbers, price, in sheets, $1; bound, $1,75. Of Vol. 6, all; price in sheets, $2; bound, $2,75. Of Vol. 7, all; price, in sheets, $2; bound, $2,75. Of Vol. 8, all; price, in sheets, $2; bound, $2,75; of Vol. 9, NONE.

GIVE INTELLIGIBLE DIRECTIONS—We often receive letters with money enclosed, requesting the paper sent for the amount of the enclosure, but no name of State given. and often with the name of the post-office also omitted Persons should be careful to write their names plainly when they address publishers, and to name the post office at which they wish to receive their paper, and the State in which the post-office is located.

PATENT CLAIMS—Persons desiring the claim of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office, stating the name of the patentee, and enclosing $1 for fees for copying.

PATENTEES—Remember we are always willing to execute and publish engravings of your inventions, providing they are on interesting subjects, and have never appeared in any other publication. No engravings are inserted in our columns that have appeared in any other journal in this country, and we must be permitted to have the engravings executed to suit our own columns in size and style. Barely the expense of the engraving is charged by us, and the wood-cuts may be claimed by the inventor, and subsequently used to advantage in other journals.

# ADVERTISEMENTS.

### Terms of Advertising.

4 lines, for each insertion, - - 75 cts
8 " " " - - $1 50
12 " " " - - $2 25
16 " " " - - $3 00

Advertisements exceeding 16 lines cannot be admitted; neither can engravings be inserted in the advertising columns at any price.

☞ All advertisements must be paid for before inserting.


**DYER**—A situation is wanted by an experienced Cotton Dyer, who for ten years has conducted the Skein and Warp Dyeing in some of the most extensive manufacturing companies in America. Can give the best of references. Address letters, post paid, to R. M., this office. 16 2*

**EAGLE FOUNDRY**—Steam Engine and Millwright Establishment for sale.—The subscriber offers for sale his well-known establishment on Gadsden's Wharf, Charleston, S. C., convenient to the river for steamboat work or shipping and receiving machinery, &c. The workshop, tools, patterns, &c., are in good order and calculated for the manufacture of all kinds of engines, railroad work, and machinery of every description. For terms, which will be made easy, and possession given immediately, apply to JAMES McLEISH.
15 6* Charleston, S. C.

**PLANING MACHINE**—A new patented Planing Machine, by L. Gilson, of Boston, Mass., calculated for wheelwrights, car and sash manufacturers, &c. &c. It will plane any given circle, and on bevels from 45 deg. to an upright: the machine planes lumber out of winding and straight stuff. The cylinder is a rotary on which the cutters are fastened. For further particulars address JOEL WHITNEY,
15 2* Agent, Winchester, Mass.

**MAGNETIC IRON ORE**—For sale, 10,000 tons from the celebrated Ames Vein situated at Franklin, N. J., belonging to the New Jersey Franklinite Co.: apply to HOLDANE & CO.,
15 2* 91 Washington st., N. Y.

**FRANKLINITE IRON ORE**—For sale, 5,000 tons of this superior iron ore for mixing in blast furnaces, from the mines of the New Jersey Franklinite Company, Sussex Co., N. J., to be delivered at the mines or in the city of New York: apply to HOLDANE & Co.,
15 2* 91 Washington st., N. Y.


UNITED STATES PATENT OFFICE,
Washington, Dec. 2, 1853.

**ON THE PETITION** of Henry Burden, of Troy, New York, praying for the extension of a patent granted to himon the 2nd day of September, 1840, and ante-dated 2nd March, 1840, for an improvement in Machinery for making Hook-headed Spikes, for seven years from the expiration of said patent, which takes place on the 2nd day of March, eighteen hundred and fifty-four—

It is ordered that the said petition be heard at the Patent Office on Monday, the 13th day of February next, at 12 o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Evenig National Argus and Pennsylvanian, Philadelphia, Pennsylvania; United States Argus, and Scientific American, New York; Boston Pcst, Boston, Massachusetts; Atlas, Albany, New York; Morning Post, Pittsburg, Pa., and Enquirer, Cincinnati, Ohio, once a week for three successive weeks previous to the thirteenth day of February next.

CHARLES MASON,
Commissioner of Patents.

P. S.—Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 14 3


**IRON DRILLS**.—Portable drills for drilling iron.—They are the most simple and convenient drill in use, having a newly invented feed motion, simple and efficient in its operation. They are constructed of iron, and weigh 80 lbs. We can recommend them as a first rate article. Price $25. Address MUNN & CO., at this office.

**TO INVENTORS**—The "Inventors Protective National Union," composed of inventors only, is now organized. You are invited to become members by sending your address. the names of your inventions, and $5, to the Superintendent or Secretary; your name and inventions will be recorded in the book of the Constitution and By Laws, from which time you can participate in all the advantages of the Society. Copies of the Constitution and By Laws will be sent to inventors, on application, gratis. L. B. PAGE, Sup't at the Crystal Palace, New York. HAMMOND HOWE, Sec'y, Washington City. 14 3*

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# Scientific Museum.

### Effect of Sulphate of Lime upon Vegetable Substances.

The following is condensed from a very interesting paper read by Chevalier Claussen, inventor of the flax cotton, before the last meeting of the British Association for the Advancement of Science :—

"About six weeks since I was engaged in making some experiments on the effect of sulphate of lime upon vegetable substances. A portion of the substances then used by me was thrown carelessly aside, and upon returning to my experiments about a fortnight afterwards, I was surprised to find that decomposition had not taken place in those portions of the vegetables which had been subjected to the action of the sulphate, while those which had not been so treated were completely decayed. Among the articles experimented upon were a number of potatoes, each of which was affected by the prevalent disease; some of these remain sound to the present day; the others have some time since completely rotted away. Subsequently I procured some more potatoes, and also some beet-roots, the former being, as far as I could judge, all diseased. I divided the potatoes into three portions. One lot I placed in a vessel with a weak solution of sulphuric acid, and from thence I placed them in a solution of weak lime water. In the second lot the process was reversed, that is to say, the potatoes were first placed in the lime water, and then in the acid. The third lot was left untouched. Ten days afterwards I examined the potatoes, and found, as I expected, that those which had not been treated with the sulphate were rapidly decaying; those which had been first placed in the solution of lime and then in the acid were more nearly decomposed; while those which had been treated in the mode first described remained as sound as when first taken in hand. Upon being cut open, the diseased part of the potatoes was not found to have spread internally, and the flavor of the root was in no degree affected by the application of the process, nor do I think that its germinating power was injured by the effect of the sulphate. The effect upon the beet roots was similar to that produced upon the potatoes, and which would seem to be somewhat analogous to that of galvanizing, viz., protecting the substances from the effect of the atmospheric agencies. I may add, that muriatic and other acids have been employed by me on other occasions with equal success, the only agents required appearing to be those which will most readily produce a salt in contact with the substances required to be preserved. As at present it does not appear that any means can be successfully adopted to prevent the potato from becoming diseased while in the ground and arriving at maturity, it would certainly be of immense advantage if anything could be discovered by the use of which the roots when taken up could be prevented from that absolute decay and irreparable loss to which potatoes affected by the disease are liable. The results which I have described seem to me to point to the possibility of arresting this loss. How far the plan suggested may be practicable or applicable upon a large scale, my present very pressing and numerous engagements have hitherto prevented me from ascertaining. I do not think that any insuperable difficulty exists with respect to the application of the process. The acid employed by me was very weak, about 1 part to 200 of water; the lime water was about the consistency of milk. The materials are not therefore expensive; and when the value of the crop to be saved is taken into consideration, it would be a matter well-worthy of being tested.

### Present to a Master Mechanic.

The engineers and mechanics of the Cleveland and Columbus Railroad, have presented Perry Little, with a splendid gold watch and chain, and the engineers and mechanics of the Columbus and Xenia Railroad shop, have presented him with a fine set of drawing instruments. These were presented as tokens of their esteem for him as a man, and admiration of his abilities as a "master mechanic."

## IMPROVED HARNESS MOTION FOR POWER LOOMS.

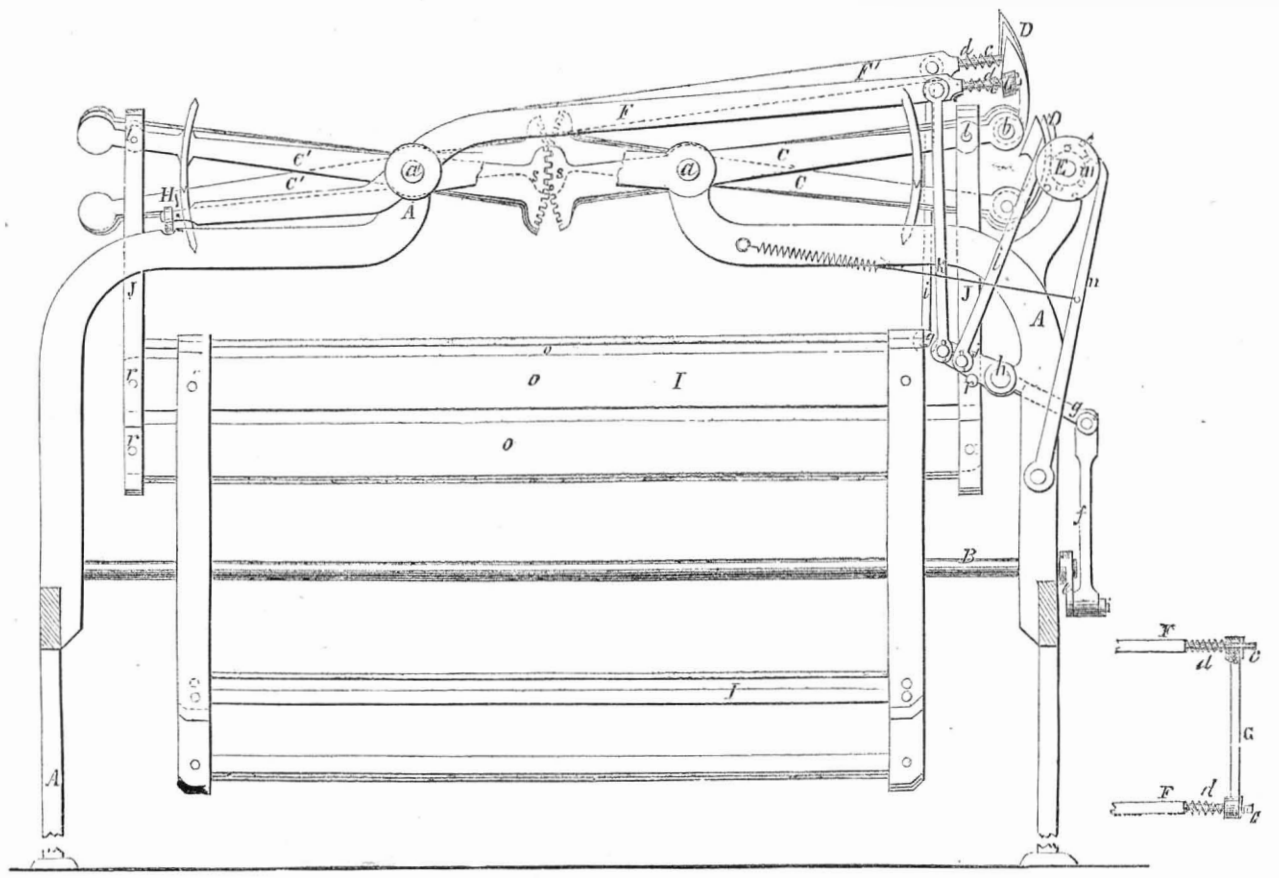
Jas. Greenhalgh, Jr., of Waterford, Mass., has invented an improved harness motion for power looms, of which the accompanying engraving is an illustration. It was patented on the 8th of November last.

The invention is intended to cause both ends of the harness to raise and fall together that it may at all times be parallel with the race beam. It consists in suspending each leaf of the harness from two jacks of similar form and length, having their fulcra at equal distances from the center of the loom, and being furnished with toothed sectors by which they are geared together, thus securing a perfect equality of motion.

The mechanism employed for operating the jacks, consists of two levers, which receive a vibratory motion, and carry a knife upon which hooks attached to the jacks are made to catch in proper succession, by a studded pattern cylinder. The knife is allowed a sufficient motion on the levers, to enable it, while the shed is closing, to pass the hooks after they are thrown into position, to be caught for the next opening, and in applying springs to it so as to throw it under the hooks after passing them. The harness is also suspended from the jacks so that either leaf can be readily taken out.

A is the framing of the loom; B is the crank shaft, and C C C′ C′ are the jacks hung on fulcra, *a a′*, at equal distance from the center, each one being geared to its fellow by toothed sectors, *s s*, so that their motions are necessarily equal. D D are the hooks, which are so formed that their weight is nearly all outside the point of suspension, *b*. E is the pattern cylinder.

F F′ are the levers which operate the jacks, their fulcra being at *a′*. The knife, G, is not materially different from that in common use; it has a hole at each end which fits easily upon the end of the levers, F F′, which are turned to allow the knife to slide thereon. Between the back of the knife and the shoulders at the




back of the turned parts, *c c*, of the levers spiral springs, *d d*, are coiled, which force the knife outward against stop collars upon the ends of the levers. A vibrating motion is communicated to these levers by a crank, *e*, on the end of the shaft, B, which, through a connecting rod, *f*, gives a vibrating motion to a lever, *g*, whose fulcrum is a shaft, *h*, which works in suitable bearings in the frame. The lever, *g*, is connected with the back lever, F, by a rod, *i*, through which it transmits its motion. At the front end of the shaft, *h*, there is an arm, *j*, which is connected by a rod, *k*, with the front lever, F, at an equal distance from the fulcrum, *a*, with the connection of the levers, *g* and F′. It is obvious that by properly proportioning the arms, *g* and *j*, such a motion may be given to the levers, J J, as to make them give each leaf of the harness a motion proportioned to its distance from the fell point of the cloth.

The heddle frames, I I, are made of sheet o light hoop iron, the top and bottom rails being made of single pieces, and the sides being double, receiving the rails between their two pieces. The top rails, *o o*, extend some distance beyond the side pieces and have a notch at each end. The suspension links, J J, consist each of a double piece, or two pieces of sheet iron pivoted by pins, *t t*, to the ends of the jacks, the two parts being separated near the bottom to form an eye for the reception of the rails, *o o*, and having fixed pins, *r r*, inserted through them.

The harness motion is worked in the following manner:—the levers, F F′, receive a vibrating motion through the crank, *e*, rod, *f*, levers, *g j*, and rods, *i k*. The knife, in ascending, catches such of the hooks as are thrown towards it by the studs on the pattern cylinder, raises the ends of the jacks, C C, to which they are attached, their fellows, C′ C′, being raised by the sectors. All the jacks, whose hooks are not caught by the knife, descend by their own weight and that of the harness, their descent being regulated by the bar, H. The shed is thus opened, and the cylinder, E, is moved during its opening to change the pattern for the succeeding shed, and all the hooks of those jacks which are now descending, but are to be raised for the next shed are thrown forward. When the knife descends, its springs, *d d*, allow it to pass the forward hooks, whose points then slip over the edge of the knife, which descends far enough to free all the hooks, and those which are opposite blanks in the pattern cylinder fall back by reason of their own weight, but the others are caught when the knife commences rising.

This is a very excellent improvement in looms and we can confidently recommend it to those interested in manufacturing. For further information address the patentee, Waterford, Worcester Co., Mass.

The wool picker illustrated in the "Scientific American" three weeks since, is the invention of Reuben Daniels and Albert G. Dewey, instead of E. Kellogg & Co. These latter are the manufacturers but not the inventors and patentees. This statement should have been made at the time of publication, but the fact did not occur to us until our attention was called to the mistake.

### Receipt for Out-door Whitewash.

Make a barrel of whitewash in the ordinary manner, and while hot dissolve ten pounds of salt and ten pounds of sugar, or an equivalent quantity of molasses, and stir it with your whitewash—some add also an equal quantity of glue. This can be colored by ochre, umber &c., to any desirable tint, it is better if applied hot.

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There are indications that the Copyright Question will receive considerable attention during the present Congress.

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